Introduction

In this module, we will explore strings and text files in Python. Text forms the basis of emails, web pages, and text messaging. In this module, we will learn how to manipulate strings or data in text files, which is useful in organizing and processing words and characters. In each topic, the structure and respective methods or functions will be covered, and a set of illustrative examples will be provided to help in understanding how to employ the string data structure in Python programs and to process or edit text-based files.

Topics and Learning Objectives

Topics

- Characters and strings
- Text files

Learning Objectives

By the end of the module, you will be able to:

- Find and replace strings and substrings in a text.
- Read and write strings or numbers from and to files.
- Convert a numeric string from one base to another.
- Access and manipulate files on disks.

Readings

Required Readings

- Lambert, K. A. (2019). *Fundamentals of Python: First programs* (2nd ed.). Boston, MA: Cengage Learning.
    - Strings and Text Files, pages 102–133

Characters and Strings

Please watch this video presentation as it demonstrates how to access individual characters in a string, how to retrieve a substring, and how to search for a substring in a string. Then, it will show an application on how to convert a numeric string from one base to another. Finally, it will illustrate how to use string methods in Python to manipulate characters and strings.

Ryecast Video:
CIND830 - Module 5: Characters and Strings

Download

Download the PDF file for **CIND830 - Module 5: Strings and Text Files.**

Please note this PDF file will be used in all two videos of this module. In the PDF, you can use the top navigation bar to navigate between the topics covered in each video.

Download the **CIND830 - Module 5: Characters and Strings transcript**.

Text Files

In this presentation, we will practice reading data or information from text-based files. The data that we will be reading can be viewed as characters, words, numbers, or even text lines, depending on the text file's format and the purpose of the collected data. We will also learn how to write data elements to text-based files or modify them before storing them back to the working files.

Ryecast Video:
Module 5: Text Files

Download

Download the PDF file for **CIND830 - Module 5: Strings and Text Files** and click on the topic "**Text Files**" in the top navigation bar to take you to the beginning of this topic.

Download the **CIND830 - Module 5: Text Files transcript**.

Self-Assessment Quiz

Please complete the following review activity. The activity is not graded.

Test Yourself

H5P Object:
Self-Assessment Quiz

Summary

In this module, we explored strings data structures and text files. We showed the formation of strings and how to traverse and extract data items from them. We also showed how to manage strings methods to manipulate characters and strings. With text files, we showed how to use the built-in system methods to open, read, and write to a file. On each topic, we were keen to give illustrative examples to articulate these concepts.

Activities

Discussion

Module 5 Discussion

This week, let's discuss characters, string methods, and text files in the **Module 5 Discussion** topic in D2L under the **Communication** drop-down menu, then **Discussions**. Feel free to start a new thread or respond to someone else's post.

Lab Activity

Lab 4

Before starting Lab 4, be sure you have reviewed all the content in Module 5. The lab is a practical extension to apply your knowledge gained from this module.

Download Lab 4 now and complete it by the end of this week. Your instructor will give you time to work on it before releasing the solutions in a folder called **Lab Solutions** in D2L under the **Course Materials** drop-down menu for you to verify your answers. The lab activity is not graded.

While working on your lab, post any questions, ideas, and strategies in the **Module 5 Discussion** topic in D2L. Feel free to read and respond to your peers' posts as well. You may also have the option of reaching out to your instructor during his/her virtual office hours.

Please note: The PDF for the lab activity may not be fully accessible for students who use assistive technology. If you require an accessible version, please contact your instructor.

Assessments

Quiz Module 5

Please go to your D2L course shell, under the **Assessment** drop-down menu, select **Quizzes**. Then click on the **Quiz Module 5 link** and follow the instructions to complete this quiz. The date and length of time have been set for this quiz. **This quiz is a cumulative 10% of your final grade.**

Assignment 1

Assignment 1, worth 15% of your final grade, is due by the end of this module. In D2L, go to the **Assessment** drop-down menu, then **Assignments**. Click on the **Assignment 1 link**. Read the description and follow the instructions to complete your assignment.

You are required to submit both the notebook file (in IPYNB format) and the exported version (either in PDF or HTML format) in the same Assignment 2 link in D2L. Failing to submit both files will be subject to a mark deduction.

While you are working on this assignment, feel free to share your questions, ideas, and strategies in the **Assignment 1 Discussion** topic in D2L.

References

- Lambert, K. A. (2019). *Fundamentals of Python: First programs* (2nd ed.). Boston, MA: Cengage Learning.

- Python Software Foundation. (2020). Python 3.7.8 documentation. Author. Retrieved from https://docs.python.org/3.7/index.html.